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ABSTRACT

The Arizona Course Instructor Evaluation Questionnaire (CIEQ) was designed to assist individual instructors in improving teaching methods and courses. Secondary uses include faculty evaluation, research, and course and instructor selection by students. Successive refinements of the original pool of 1,000 items by factor analysis and subjective expert judgment led to the current 21-item instrument with five subscales: general course attitude, method of instruction, course content, interest and attention, and instructor. Internal consistency reliability coefficients on the subscales ranged from .80 to .98. Normative data based on class means were collected from 16,000 course sections at two universities, and 6,800 sections nationwide. The data compared results of student ratings by course level (from freshman to graduate), proportion of required enrollment, and instructor rank. The first two variables yielded significant validity effects. No normative data were provided for variables having little or no relationship to student ratings--class size, sex of student and instructor, time of day, and semester. (The current CIEQ, step by step instructions for interpreting the items and subscales, and 32 normative data tables are appended). (CP)

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ARIZONA COURSE/INSTRUCTOR EVALUATION QUESTIONNAIRE (CIEQ)

RESULTS INTERPRETATION MANUAL

FORM 76

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NATIONAL INSTITUTE OF EDUCATION

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ARIZONA COURSE/INSTRUCTOR EVALUATION QUESTIONNAIRE (CIEQ)
RESULTS INTERPRETATION MANUAL
FORM 76[1]

Introduction

If one assumes that the purpose of education is to change student behavior as a result of some definite course of instruction, then an objective of educational research should be to determine what procedures or techniques best produce the desired behavioral changes. If the desired behavioral changes can be identified and defined, then the educational researcher can develop instruments to measure them.

Let us also assume that if one does in fact change student behavior in the specified direction as a result of a course of instruction, then that course has been effective. If that course has been effective, then there could be a large number of elements in that course contributing to its effectiveness, such as the instructor, textbook, homework, course content, method of instruction, student interest, student attention, general student attitude toward the course, etc.

Assuming that all of the elements enumerated above can affect, directly or indirectly, student behavior in a course, and assuming that the students are the only ones who are constantly exposed to those elements, then they appear to be the most logical evaluators of the quality and effectiveness of the course elements. In addition, student opinions should indicate areas of rapport, degrees of communication, or the existence of problems and thereby help instructors as well as educational researchers describe and define the learning environment more concretely and objectively than they could through other types of measurement.

There are various ways of sampling student opinion. Some useful information can be derived simply by determining the number of students who agree or disagree with certain statements about the course. Or, sometimes it proves useful to ask students to write short essays about the course in order to obtain information about their experiences under specific instructional situations. Such individualized procedures do not, however, provide an opportunity to compare the results of one course with results of another. Measurement is more useful when comparative results are available. More adequate interpretation may occur when: (a) the data have been collected in a standardized fashion with appropriate attention given to sampling, reliability, and validity, and (b) many instructors and instructional programs have been measured with the same instrument so that comparisons can be made.

The Arizona Course/Instructor Evaluation Questionnaire (CIEQ) was designed to collect student attitudes toward courses and instructors and to enable faculty members to collect evaluative information about their teaching. Interpretative

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[1]Form copyrighted by Lawrence M. Aleamoni, 1975.

information and normative comparisons are made available to each instructor so that he/she may determine the major areas of strength and weakness in the course. The instructor may submit copies of CIEQ results to the department for instructional evaluation considerations and/or to ASUA student publications for student use in selecting courses. More formalized use of CIEQ results in administrative decisions for rank, pay, and tenure should take into account suggestions for developing a system for rewarding and improving instructional effectiveness (Aleamoni, 1976; Note 1).

Development of the Form

The primary purpose in developing the Arizona CIEQ was to devise an instrument which could elicit student opinions about a standardized set of statements relative to certain standardized aspects of an instructional program, and to develop norms which would enable an instructor to adequately compare his/her results with the results of other instructors.

After a thorough review of questionnaires developed at other universities through 1961 (Aleamoni & Spencer, 1973), it seemed necessary to develop an instrument which would differentially tap the attitudes of students. This instrument was to be developed in such a way as to obtain results on those elements within the learning situation which relate to learning as well as to teaching.

Criteria for effective instruction were culled from the extensive literature on the subject and then items were constructed and assigned to the various criteria on the basis of their face validity. Approximately 150 separate items were developed in this manner. Additional items were obtained through the work of a faculty committee investigating effective instruction at the Pennsylvania State University. A student committee, also at Pennsylvania State, was asked to submit items. As a result a pool of over 1,000 items was obtained and then administered to 1,200 undergraduate students at the Pennsylvania State University in fall 1962. The response scale for those items consisted of five points (strongly agree, agree, uncertain, disagree, strongly disagree). In the resulting analysis, many items were deleted because they appeared to be measuring much the same thing as other items, and some were dropped because they did not differentiate among instructors, thereby leaving a total of 450 items. The 450 items were then administered to another sample and reanalyzed, yielding a third reduced form containing 100 items. This form was administered to 1,319 undergraduate students in accounting, anthropology, Army ROTC, history, mathematics, music, psychology, and zoology courses at the Pennsylvania State University.

The number of items continued to be reduced by further reanalysis involving the use of factor analysis until 28 relatively distinct items were obtained. Results of the above analyses indicated that a large number of students' responses were falling at the neutral position on the response scale and that careless and invalid responding was the rule on a significant proportion of the questionnaires. Therefore, a forced choice answering technique was adopted to handle the scale problem by eliminating the neutral position. In addition, a response set score was developed to handle the careless responses by constructing 22 negatively stated items that expressed roughly the same concepts as 22 (out of 28)

corresponding positively stated items. This, then, resulted in a final version of the questionnaire being produced in 1965 called the Illinois Course Evaluation Questionnaire (CEQ) Form 66 which contained 50 items (Aleamoni & Spencer, 1973).

Subscale Development

A principal components analysis with a VARIMAX rotation was used on the initial and all other versions of the CEQ and resulted in the same six subscales (or factors) being defined. These subscales were labeled General Course Attitude, Method of Instruction, Course Content, Interest and Attention, Instructor, and Specific Items. Each subscale contained eight items except for the Specific Items subscale which contained 10. The percent of variance in student scores which is generally accounted for by each of the factors is shown in Table 1 for the initial 1,200 sample, and has remained relatively the same for all subsequent factor analyses of the CEQ Form 66. The number of questionnaire items composing each factor is also indicated.

The subscale correlations based upon the initial administration of the 1,000 item questionnaire to the 1,200 students are presented below the main diagonal in Table 2 and clearly indicate that there is a moderate to high relationship between the subscales. However, since the correlations between the scores of any two subscales are slightly to substantially lower than the reliability of either of the subscales, it may be concluded that each of the subscales is measuring, in part, something which is unique. These correlations also remained quite stable when calculated for subsequent versions of the questionnaire. For example, the subscale correlations for data gathered in a sample of 5,294 course sections using Form 66 up through 1970 are also presented in Table 2 and appear above the main diagonal. Subscale VII represents a composite of the other six subscales.

The fact that "General Course Attitude" accounted for the largest proportion of variance indicates that there is probably some general factor underlying the responses.

The CEQ Form 66 persisted from 1965 to 1972 until a detailed analysis of the data gathered from 1966 to 1970 indicated that it was possible to further reduce the total number of items in the questionnaire. Intercorrelations of the 50 items were generated for 5,346 course sections (2,784 from UIUC and 2,562 from other colleges and universities throughout the United States), then grouped by subscale. As a result of this analysis, a revised form (Form 73) was generated which still yielded the subscales labeled General Course Attitude, Method of Instruction, Course Content, Interest and Attention, and Instructor Specific. However, each new subscale contained only four items, except the Instructor Specific subscale which contained five. An additional experimental two item Instructor General subscale was added to make Form 73 a 23 item instrument. Form 73 retained the five original CEQ subscales and reflected results of the earlier reliability and validity studies. The positive versus negative item redundancy scale was eliminated since it appeared that careless responding was no longer a problem (Brandenburg & Aleamoni, 1976).

In 1975 a reanalysis of the 50 item intercorrelation matrix and deletion of

TABLE 1

Factors Obtained from the Final 50 Item Questionnaire

Factor (Subscale)	Number of Items In the Factor	% Variance
I General Course Attitude	8	30
II Method of Instruction	8	6
III Course Content	8	5
IV Interest and Attention	8	4
V Instructor	8	3
VI Specific Items	10	3

TABLE 2

Correlations Among Subscores

	I	II	III	IV	V	VI	VII
I	1.00	.67	.71	.78	.48	.62	.86
II	.67	1.00	.65	.68	.55	.68	.87
III	.72	.65	1.00	.64	.48	.74	.84
IV	.77	.69	.64	1.00	.52	.59	.86
V	.47	.55	.46	.52	1.00	.50	.70
VI	.61	.68	.73	.60	.49	1.00	.82
VII	.86	.87	.83	.87	.69	.82	1.00

the experimental two item Instructor General subscale resulted in the production of a 21 item instrument. Additional refinements of the 21 items and their response scale yielded the present version of the questionnaire entitled the Arizona Course/Instructor Evaluation Questionnaire (CIEQ) Form 76 (see Appendix A).

Normative data used to report deciles for Form 66 were temporarily adapted to Form 73 and later replaced with Form 73 normative data. Form 76 utilizes the normative data gathered on Form 73 from 1972 through 1975, as well as normative data gathered on Form 76 from 1976 through 1978.

Reliability

Reliability of measurement may be defined in two ways. First, it is the instrument's capability of producing responses which are consistent from one occasion to another for the same group of respondents. This capability is described by a coefficient of stability. Reliability may also be defined as the capability of producing consistent responses on any given occasion. This capability is described by a coefficient of internal consistency.

For the CIEQ, the focus of concern is the reliability of each single instructor's rating; i.e., the mean score based on student responses within a single course section. Therefore, a coefficient of internal consistency is reported to the instructor of each class evaluated.

Reliability is directly related to the standard error of measurement for any given score. For CIEQ mean ratings, standard errors of measurement are reported with reliability coefficients.

1. *Reliability and standard errors of measurement for subscales.* In a study of ratings gathered in 5,346 course sections using the CEQ Form 66, the range of internal consistency coefficients on the subscales was from .80 to .98 (Gillmore, Note 2).

The data in Table 3 present the stability reliability coefficients, the standard deviations (SD), and the associated standard errors of measurement (SEM) for the CIEQ subscales using the data gathered on the 5,346 class sections (Gillmore, Note 2).

TABLE 3

Stability Reliability Coefficients, Standard Deviations, and Standard Errors of Measurement for CIEQ Subscales

Subscale	Reliability	SD	SEM
General Course Attitude	.98	.34	.05
Method of Instruction	.98	.40	.06
Course Content	.88	.25	.09
Interest and Attention	.98	.40	.05
Instructor	.92	.28	.08
Total	.96	.29	.06

5

2. *Item reliabilities and standard errors of measurement.* CIEQ item reliabilities, standard deviations, and standard errors of measurement reported in Table 4 were also derived from the data on the 5,346 class sections. The reliability coefficients are stability coefficients for each item, based on responses of approximately 20 students and computed by one-way analysis of variance. (It is impossible to calculate internal consistency estimates for a single item.)

TABLE 4

CIEQ Item Reliabilities, Standard Deviations, and Standard Errors of Measurement

Item No.	Reliability	SD	SEM
1	.84	.39	.16
2	.86	.46	.17
3	.87	.43	.15
4	.94	.43	.11
5	.87	.45	.16
6	.83	.38	.16
7	.84	.41	.16
8	.81	.32	.15
9	.82	.36	.15
10	.86	.42	.16
11	.85	.39	.15
12	.82	.36	.16
13	.89	.45	.15
14	.82	.30	.13
15	.83	.42	.17
16	.86	.41	.15
17	.85	.41	.16
18	.88	.44	.16
19	.84	.41	.16
20	.83	.36	.15
21	.85	.36	.14

Validity

1. *Validity evidence.* To validate something one must have a criterion measure for comparison. One criterion measure that can be used to validate student rating forms is how well the items and subscales measure what is intended

(called content validity). This is usually accomplished by carefully constructing the instrument so that it contains items and subscales that will yield measures in the areas that are considered appropriate by an individual or group of experts in the field under consideration. Most student rating forms are validated by using this approach (Costin, Greenough, & Menges, 1971). Statistical tools like factor analysis have also been used to verify subjectively determined dimensions of the instructional setting and process. Both statistical (factor analysis) and subjective expert judgments were used in generating the items and subscales that make up the CIEQ form (Aleamoni & Spencer, 1973).

Other criterion measures have been suggested for validation of student ratings. Some of those are peer (or colleague) ratings, expert judges' ratings, student learning, etc. Studies in which student ratings were compared to: (a) colleague rating (Aleamoni & Yimer, 1973; Guthrie, 1954; Swanson & Sisson, 1971), (b) expert judges' ratings (Stallings & Spencer, Note 3), and (c) student learning measures (Cohen & Berger, 1970; Frey, 1973; Frey, Leonard, & Beatty, 1975; Gessner, 1973; Sullivan & Skanes, 1974) have indicated the existence of high positive correlations which can be considered as providing additional validity evidence.

2. *Validity information for CIEQ interpretation.* In gathering validity information it is necessary to decide how to use results of the various investigations on the CEQ. For example, studies comparing results of student ratings by: (a) whether the student was taking the course as a requirement or on an elective basis (Costin et al., 1971; Aleamoni & Thomas, Note 4; Gillmore & Brandenburg, Note 5), and (b) the level of the course (Aleamoni & Graham, 1974; Costin et al., 1971; Aleamoni & Thomas, Note 4) yielded significant effects. Such effects, however, can be controlled through the use of appropriate normative data, an important feature of results reported for the CIEQ. The rank of the instructor (Aleamoni & Graham, 1974; Costin et al., 1971; Guthrie, 1954; Aleamoni & Thomas, Note 4) seems to have some effect, but usually not statistically significant. However, for faculty who wish to make differential comparisons by rank, normative data are provided for this variable on the CIEQ.

Studies concerning the: (a) size of the class (Aleamoni & Graham, 1974; Costin et al., 1971; Guthrie, 1954; Aleamoni & Thomas, Note 4; Batista & Brandenburg, Note 6), (b) sex of the student and sex of the instructor (Costin et al., 1971; Aleamoni & Thomas, Note 4; Aleamoni, Note 7), (c) time of day the course was offered (Yongkittikul, Gillmore, & Brandenburg, Note 8), and (d) term (or semester) the course was offered (Costin et al., 1971; Aleamoni, Note 7) indicated that these variables had little or no relationship to the student ratings and, therefore, no normative data comparisons are provided for these variables on the CIEQ.

Use and Interpretation of CIEQ Data

Recommended Uses and Administrative Procedures

The CIEQ was designed to provide information that can be used to assist individual instructors in improving teaching procedures and courses. Secondary uses of CIEQ data have also been identified. These are: (a) administrative uses (input for promotion, tenure, merit pay decisions), (b) use by students in selecting courses and instructors, and (c) research. Current policy permits

administrative and student use of CIEQ results only in cases where the instructor formally sanctions such use.

When CIEQ results are to be used administratively, it is highly desirable that those sets of data be collected under common conditions. Some evidence indicates that directions given to student raters prior to completing evaluation instruments may influence their ratings. One study (Aleamoni & Hexner, Note 9) demonstrated that when students are told results will be used for making rank, pay, or tenure decisions, ratings will be more positively biased and have less variability than those collected for feedback alone. Another study failed to corroborate this finding (Centra, 1976); however, until additional evidence is forthcoming, standardization in administrative procedures is recommended. Suggested sets of directions are as follows:

EXAMPLE SET A

"This Course/Instructor Evaluation Questionnaire is one that some of you may have used in the past. The purpose of this administration is to provide me with evaluative feedback on your perceptions of this course. Analysis of the results include comparisons of this course to others offered on this campus, but they will not be sent to me until after final grades are reported. Your complete cooperation will be appreciated...."

(Pass out the questionnaires, optional items--if used--and #2 pencils--if available.)

"May I have a volunteer to collect the forms, place them in this envelope along with a form I must fill out, and then place the envelope in Campus Mail...."

(Decide on a student.)

"Use ONLY A PENCIL--PREFERABLY A #2 -- marking the forms. DO NOT use X's, check marks, or any marks other than a vertical bar between the brackets for each answer. If you must erase, do so COMPLETELY as an incomplete erasure may be scored as an intended answer....

"Turn to the BROWN side of the form....and complete all information at the top....Please be certain you have filled in the box on the far right hand side labeled 'Course Code'....

"Enter the appropriate responses for Standard Items 1-21 (and optional items, if any)....When finished with the front side, turn the questionnaire over and respond to the subjective items on the back."

EXAMPLE SET B

"This Course/Instructor Evaluation Questionnaire is one that some of you may have used in the past. The purpose of this administration is two-fold, first to provide departmental decision-makers with information for making rank, pay, and tenure judgments on me, and second to provide me with evaluative feedback on your perceptions of this course. Analysis of the results include comparisons of this course to others offered on this campus, but they will not

be sent to me until after final grades are reported. Your complete cooperation will be appreciated...."

The rest of the directions would be identical to those in Example Set A.

Note that Example Set A specifies use for feedback purposes only. Data collected after these directions should not be compared with data collected following directions like those in Example Set B.

Description of Results

For the following discussion on interpretation of CIEQ results, the reader should refer to the sample output in Figure 1, beginning at the top of the output.

1. *COURSE IDENTIFICATION INFORMATION*

   Course Code and Instructor Name

   Course Name and Number

   Additional Identifying Information (e.g., Department Code)

2. *STUDENT DATA (Appears Before Standard Item Information)*

   Student Status: The proportion of freshmen, sophomores, juniors, seniors, graduate students, and others.

   Pass-Fail: The proportion of students taking the course on a pass-fail basis or not.

   Course Option: The proportion of students taking the course to fulfill a requirement or who chose it as an elective.

   Sex: The proportion of males and females.

   Expected Grade: This is presented as the proportion of students who expect an A, B, C, D, or E.

   Major-Minor: The proportion of students taking the course as part of their major, minor, or other.

   Semester: The semester (fall, spring, or summer) in which administration took place.

   Sample Size: The number of students responding to the CIEQ is presented below the subscale results on the second page.

   NOTE: The student data are presented so that the instructor may compare the student characteristics of one course section to another. Should CIEQ results differ from one section to another, attention to differences in student characteristics may lead to a more adequate understanding or interpretation of these differences. (This was found to be the case for the required-elective characteristic [Gillmore & Brandenburg, Note 5], so separate norm tables were generated for certain categories of this variable

09/20/78 Figure 1 * * * MERMAC --
RESULTS FOR THE

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FRESH
0.00

V POOR POOR
0.00 0.00

V POOR POOR
0.00 0.00

V POOR POOR
0.00 0.00

ITEM
1. IT WAS A VERY WORTHWHILE COURSE
2. I WOULD TAKE ANOTHER COURSE THAT WAS TAUGHT THIS WAY
3. THE INSTRUCTOR SEEMED TO BE INTERESTED IN STUDENTS AS INDIVIDUALS
4. THE COURSE MATERIAL WAS TOO DIFFICULT
5. IT WAS EASY TO REMAIN ATTENTIVE
6. NOT MUCH WAS GAINED BY TAKING THIS COURSE
7. I WOULD HAVE PREFERRED ANOTHER METHOD OF TEACHING IN THIS COURSE

TEST ANALYSIS AND QUESTIONNAIRE PACKAGE

OBJECTIVE ITEMS ON THE CIEQ FORM 76 QUES

SPRING SEMESTER, 1978

? 909 B 5 32 85000 1 0 11 4SD

STATUS

SOPH	JR	SR	GRAD	OTHER	OMIT
0.00	.73	.09	0.00	0.00	.18

PASS-FAIL

YES	NO	OMIT
0.00	.82	.18

COURSE OPTION

REQ	ELECT	OMIT
.64	.09	.27

SEX

MALE	FEMALE	OMIT
.73	.09	.18

EXPECTED GRADE

A	B	C	D	E	OMIT
09	.36	.27	.09	0.00	.18

MAJOR-MINOR

MAJOR	MINOR	OTHER	OMIT
.45	0.00	.36	.18

SEMESTER

FALL	SPRING	SUMMER	OMIT
.18	.64	0.00	.18

CONTENT RATING

FAIR	GOOD	V GOOD	EXCEL	OMIT	MEAN-
.18	.09	.36	.18	.18	4.67

INSTR RATING

FAIR	GOOD	V GOOD	EXCEL	OMIT	MEAN-
.09	.27	.18	.27	.18	4.78

COURSE RATING

FAIR	GOOD	V GOOD	EXCEL	OMIT	MEAN-
.09	.27	.36	.09	.18	4.56

AS	A	D	DS	OMIT	BES
.45	.36	.09	0.00	.09	AS
.36	.45	.09	0.00	.09	AS
.18	.55	.18	0.00	.09	AS
0.00	.27	.36	.27	.09	DS
.27	.36	.18	.09	.09	AS
0.00	.09	.36	.45	.09	DS
.09	.18	.55	.09	.09	DS
B	C	D	E	F	G

* * *

TIONNAIRE

--S. D.
1.12

--S. D.
1.09

--S. D.
.88

T	MEAN	S.D.	DECL	0123456789
	3.40	.70	7	*
	3.30	.67	7	*
	3.00	.67	3	*
	3.00	.82	4	*
	2.90	.99	5	*
	3.40	.70	6	*
	2.70	.82	3	*
	H	I	J	K

09/20/78 Figure 1 (continued) * * * MERMAC

RESULTS FOR

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ITEM	
8.	THE COURSE MATERIAL SEEMED WORTHWHIL
9.	THE INSTRUCTOR DID NOT SYNTHESIZE, INTEGRATE OR SUMMARIZE EFFECTIVELY
10.	THE COURSE WAS QUITE INTERESTING
11.	THE INSTRUCTOR ENCOURAGED DEVELOPME OF NEW VIEWPOINTS AND APPRECIATIONS
12.	I LEARN MORE WHEN OTHER TEACHING METHODS ARE USED
13.	SOME THINGS WERE NOT EXPLAINED VERY WELL
14.	THE INSTRUCTOR DEMONSTRATED A THORCU KNOWLEDGE OF THE SUBJECT MATTER
15.	THIS WAS ONE OF MY POOREST COURSES
16.	THE COURSE CONTENT WAS EXCELLENT
17.	SOME DAYS I WAS NOT VERY INTERESTED IN THIS COURSE
18.	I THINK THAT THE COURSE WAS TAUGHT QUITE WELL
19.	THE COURSE WAS QUITE BORING
20.	THE INSTRUCTOR CONSIDERED TEACHING AS A CHORE OR ROUTINE ACTIVITY
21.	OVERALL, THE COURSE WAS GOOD

--SUBSCALE--	ITEMS	P/
GENERAL ATTITUDE	4	.
METHOD	4	.
CONTENT	4	.
INTEREST	4	.
INSTRUCTOR	5	.
TOTAL	21	.

L

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-- TEST ANALYSIS AND QUESTIONNAIRE PACKAGE

THE OBJECTIVE ITEMS ON THE CIEQ FORM 76 QUESTI

SPRING SEMESTER, 1978

ED P 909 B 5 32 85000 1 0 11 4SD

	AS	A	D	DS	OMIT	BEST
E	.45	.36	.09	0.00	.09	AS
	0.00	.18	.64	.09	.09	DS
	.36	.36	.09	.09	.09	AS
T	.27	.55	.09	0.00	.09	AS
	0.00	0.00	.73	.09	.18	DS
	0.00	.45	.36	.09	.09	DS
GH	.45	.45	0.00	0.00	.09	AS
	0.00	.27	.45	.18	.09	DS
	.18	.64	0.00	.09	.09	AS
	.18	.27	.36	.09	.09	DS
	.36	.45	.09	0.00	.09	AS
	.09	0.00	.45	.36	.09	DS
	0.00	0.00	.73	.18	.09	DS
	.45	.27	.18	0.00	.09	AS

RES	MEAN	S.D.	REL	RANK	LEVEL	INSTIT
91	3.25	.74	.93	4	4	5
89	3.10	.68	.28	5	5	5
91	3.00	.78	.76	3	3	4
91	2.90	.98	.93	4	4	5
91	3.16	.58	.74	2	2	3
90	3.09	.76	.94	4	4	4

SAMPLE SIZE = 11

M N O P Q R S

NOW HAVE UNIVERSITY OF ARIZONA NORMS.
MATICNAL MEMORANDA FOR DETAILS.

* * *

ONNAIRE

MEAN	S.D.	DECL	0123456789
3.40	.70	8	*
2.90	.57	2	*
3.10	.99	5	*
3.20	.63	7	*
3.11	.33	8	*
2.60	.70	4	*
3.50	.53	5	*
2.90	.74	3	*
3.00	.82	6	*
2.40	.97	6	*
3.30	.67	7	*
3.20	.92	6	*
3.20	.42	4	*
3.30	.82	6	*

COLL-EGE	OVER-ALL	DEPT
5	5	6
6	5	7
5	4	7
5	5	6
3	3	5
5	4	6

T U V

and are presented in Appendix E.)

3. *GENERAL ITEMS (From the Course Information Section)*

The results for these three items (Rate the Course Content, Rate the Major Instructor, and Rate the Course in General) are presented according to the proportion of students who responded "Excellent", "Very Good", "Good", "Fair", "Poor", and "Very Poor". To the right of each set of proportions the mean and standard deviation (SD) are printed. The mean value is calculated by letting "Excellent" = 6, "Very Good" = 5, "Good" = 4, "Fair" = 3, "Poor" = 2, and "Very Poor" = 1.

4. *STANDARD ITEM RESPONSES 1-21*

Several columns of information reporting students' responses for each item are presented following the student data. The actual items are also printed to the left of this information. For explanatory purposes, the sample results presented in Figure 1 have lettered codes printed at the bottom of each column. The interpretation of each lettered column is as follows:

A: Contains the ITEM number

B: The proportion of students agreeing strongly (AS) with this item.

C: The proportion of students agreeing (A) with this item.

D: The proportion of students disagreeing (D) with this item.

E: The proportion of students disagreeing strongly (DS).

F: The proportion of students leaving this item blank (OMIT).

G: This column indicates the most favorable responses for each item, either AS or DS. On Form 76 11 of the items are assigned the most favorable response of AS and 10 are assigned the most favorable response of DS.

H: The numerical average (MEAN) of the AS, A, D, and DS responses is presented for each item. The MEAN is obtained by weighting the positively stated items, AS = 4, A = 3, D = 2, DS = 1, and the negatively stated items, AS = 1, A = 2, D = 3, and DS = 4.

I: This column contains the standard deviation (S.D.) of the responses for each item.

J: This column presents the all-university or college norm decile (DECL); i.e., a comparison of this class's MEAN responses with those obtained in other classes throughout the university or college. This comparison group is referred to as the "norm group". Deciles range from a low of 0 to a high of 9 and may be interpreted as follows:

0 indicates that the course MEAN falls in the lowest 10% of the norm group,

1 indicates that there are 10 to 19% of the norm group who received lower means,

2 indicates that there are 20 to 29% of the norm group who received lower means,

and so on, through 9.

The actual all-university norm decile intervals are presented in Appendices F and J.

K: The *Decile Profile* is presented in this column by printing an asterisk corresponding to the appropriate decile. The asterisks which are found on the right side of the column (deciles of 7, 8, or 9) are indicative that improvement is not necessary and should be considered "good". Those to the left (deciles of 0, 1, or 2) are indicative that improvement is definitely necessary and should be considered "poor". Those in the middle (deciles 3, 4, 5, or 6) should be considered "average".

5. *SUBSCALE RESPONSES*

At the bottom of the second page of the results are the questionnaire SUBSCALES. You will note that there are five subscales and one total scale. The items which are grouped into each subscale are presented in Table 5. The subscale abbreviations are as follows: GCA = General Course Attitude, MI = Method of Instruction, CC = Course Content, I&A = Interest and Attention, I = Instructor, TOTAL = Total Scores Items 1-21. The total subscale score is an unweighted mean for the sum of all items.

L: The number of ITEMS comprising the subscale.

M: The percentage of students who responded (P/RES) to the items included in the subscale.

N: The MEAN response based on the items in each subscale.

O: The standard deviation (S.D.) of the responses.

P: The reliability (REL) is based on an internal consistency calculation (coefficient alpha) which indicates the confidence one can place in the results for this group of students. Reliability figures over .90 can be considered very good, .65 and above are probably acceptable, and below .65 are questionable. Reliability figures below .65 may be due to small samples of students or very little variation in student responses.

Q: The RANK norm compares the course to all courses of instructors at that same rank. The actual norm decile intervals are presented in Appendices D and I.

R: The LEVEL norm compares the course to all courses at that same course level (i.e., freshman, sophomore, junior, senior, or graduate). The actual norm decile intervals are presented in Appendices C and H.

S: The institution (INSTIT) norm compares the course to all courses at that university (i.e., University of Arizona). The actual norm decile intervals are presented in Appendix B.

T: The COLLEGE norm compares the course to all courses in the appropriate college within a university (e.g., Liberal Arts).

U: The OVERALL norm compares the course to all courses that have used the CIEQ throughout the United States. The actual norm decile intervals are presented in Appendix G.

V: The department (DEPT) norm compares the course to all other courses in the appropriate department within the university (e.g., economics).

(Required-elective norms are given in Appendix E according to three partitions of the proportion of students taking the course as a requirement and tabulated by level of course.)

TABLE 5

CIEQ Items Grouped by Subscale

General Course Attitude

1. It was a very worthwhile course.
6. NOT much was gained by taking this course.
15. This was one of my poorest courses.
21. Overall, the course was good.

Method of Instruction

2. I would take another course that was taught this way.
7. I would have preferred another method of teaching in this course.
12. I learn more when other teaching methods are used.
18. I think that the course was taught quite well.

Course Content

4. The course material was too difficult.
8. The course material seemed worthwhile.
13. Some things were NOT explained very well.
16. The course content was excellent.

Interest and Attention

5. It was easy to remain attentive.
10. The course was quite interesting.
17. Some days I was NOT very interested in this course.
19. The course was quite boring.

Instructor

3. The instructor seemed to be interested in students as individuals.
9. The instructor did NOT synthesize, integrate, or summarize effectively.
11. The instructor encouraged development of new viewpoints and appreciations.
14. The instructor demonstrated a thorough knowledge of the subject matter.
20. The instructor seemed to consider teaching as a chore or routine activity.

Interpretation of Results

The items of the CIEQ were not meant to be completely diagnostic of specific instructional settings, but they should serve to elicit diagnostic

interpretations from the instructor as he or she focuses on each area of concern. These areas of instructional concern can generally be identified by looking at the subscale information which follows the item response data. The following procedures have been found to be useful in working with instructors to improve their teaching performance. (Not all of the following points are necessary for each instructor to deal with.)

1. Look at the column in the subscale area labeled "REL"--this is the reliability of each subscale based on the items allocated to that subscale. If the reliability is less than .65, the subscale data are considered to be unreliable and they should not be used with confidence.

The only exception to this interpretation would be if all student responses tend to be the same resulting in a low reliability value, then the results would be considered consistent (e.g., all students agreed (A) with the items in the Instructor subscale).

2. If the "REL" figure is greater than or equal to .65, examine the "decile" column for the norm group with which you are most interested in comparing yourself and your course. Use this general rule of thumb: the decile ranges of 0-2, 3-6, and 7-9 can be considered "poor", "average", and "good" categories, respectively, for each subscale.

3. If any one of your subscale deciles falls in the "poor" or "average" category, that is an indication of a student-perceived potential (or actual) area of weakness in the course that needs attention.

4. The next step would be to look at each item in that subscale and its decile to try to determine the source of the difficulty. This process requires you to reflect on what has taken place in the course in conjunction with what the student responses to the items suggest as points or areas of difficulty or weakness. In order to assist you in determining the source of difficulty Table 6 contains definitions and interpretations of the CIEQ subscales from the point of view of student responses.

TABLE 6

Definition and Interpretation of CIEQ Subscales

General Course Attitude

This represents the students' overall perception of the course, taking into account all the elements that they have been exposed to over the duration of the course. Some of the criteria they use in responding to the items in this subscale are the following:

Item 1: *"It was a very worthwhile course."*

When responding to this item students are indicating that (a) the course was not a waste of time, (b) the course was helpful in their major area of study, (c) the course has practical applications outside of the institution, (d) they learned a great deal,

(e) they felt the material was applicable in other situations, and
(f) they enjoyed taking the course.

Item 6: *"NOT much was gained by taking this course."*

When responding to this item students are indicating that (a) there is a great deal of repetition of material from other courses, (b) the course did not apply to their major area, (c) the instructor did not seem to know the material, (d) the class progress was too slow, (e) the class level was too elementary, (f) it was up to the student to glean relevant information, and (g) the students may have learned something.

Item 15: *"This was one of my poorest courses."*

When responding to this item students are indicating that (a) it was the poorest based on the grades that they received, (b) they did not understand what the instructor wanted them to do, (c) there was a poor general understanding of what the instructor was trying to teach, and (d) it was the poorest based on their attitudes towards the course.

Item 21: *"Overall, the course was good."*

When responding to this item students are indicating that (a) they felt the material was applicable in other situations, (b) the instructor was organized, (c) the instructional materials held the students' attention, (d) the atmosphere was relaxed, allowing students to express themselves easily, (e) there were good examinations, (f) they felt they were retaining what was taught, (g) they were attaining good grades, and (h) the course was able to hold their attention.

Low decile ratings on this subscale might indicate to the instructor that:

1. The course was viewed as a waste of time.
2. The pace was too slow.
3. The level was too elementary.
4. The students were not learning much new material.
5. He/She was not well prepared or organized.
6. The objectives for student performance and the course were not clear.
7. The atmosphere in the class was not relaxed.
8. Students did not feel free to express themselves.
9. Students were not retaining what was taught.
10. The examinations were poor, as was the grading.

Method of Instruction

This represents the students' perception of how the course was taught, taking into account all the elements that relate to presentation of the subject matter and the involvement of students in the learning process. Some of the criteria they use in responding to the items in this subscale are the following:

Item 2: *"I would take another course that was taught this way."*

When responding to this item students are indicating that (a) there was allowance for student participation, (b) they gained knowledge from this course, and (c) the instructor's personality entered into the way the course was taught.

Item 7: *"I would have preferred another method of teaching in this course."*

When responding to this item students are indicating that the method did not encourage them to learn very much.

Item 12: *"I learn more when other teaching methods are used."*

Students interpret this item as it is written.

Item 18: *"I think that the course was taught quite well."*

When responding to this item students are indicating that (a) they understood the material, (b) the course held their interest, (c) they were learning, (d) they desired to attend class, (e) the instructor might be willing to accept more than one point of view, (f) the instructor was interested in the course, (g) the subject matter was covered well, (h) they were inspired to do outside reading, (i) the tests were easy to follow, (j) what was taught made sense after the lecture was over, and (k) the instructor was able to use a variety of teaching methods because he/she understood the material.

Low decile ratings on this subscale might indicate to the instructor that:

1. The course and instructional objectives were not clearly stated.
2. No allowance was made for student participation.
3. His/Her personality interfered with the instruction.
4. The teaching methods used did not encourage the students to learn.
5. The students did not understand the course material.
6. There was a lack of variety in presenting concepts, principles, ideas and examples.
7. Classroom presentations were not well planned and organized, suggesting instructor disinterest in the course.
8. The subject matter was not covered well.
9. Students were not inspired to do any outside reading.
10. The students felt he/she lacked an understanding of the material by not using a variety of teaching methods.
11. Class time was used inefficiently.
12. Examinations were hard and considered unfair.

Course Content

This represents the students' reactions to the course material including textbooks and examinations. Examples of some of the criteria they use in responding to each item in this subscale are the following:

Item 4: *"The course material was too difficult."*

In responding to this item students are indicating that (a) it was hard to follow the instructor presented material and/or the textbook, (b) they were not able to clarify the material after the lecture--even with the use of the textbook, (c) the instructor was confusing them with complex vocabulary, and (d) the instructor's presentation was incomprehensible.

Item 8: *"The course material seemed worthwhile."*

In responding to this item students are indicating that (a) it is worthwhile knowing this material, (b) they can apply what was taught, (c) their general knowledge and appreciation of the material has been broadened, and (d) the material was relevant.

Item 13: *"Some things were NOT explained very well."*

In responding to this item students are indicating that (a) course content was not clarified, (b) material was passed over too quickly, (c) some material was not addressed in the lecture, (d) they considered material not explained very well to be unimportant and yet it appeared in an examination, and (e) explaining things is the instructor's responsibility.

Item 16: *"The course content was excellent."*

In responding to this item students are indicating that (a) the course content made it easy to follow the textbook, (b) the materials used in the class were excellent, (c) one did not need to follow the textbook, (d) the material was relevant, (e) they were interested in the material, and (f) all the material was covered extremely well by the instructor.

Low decile ratings on this subscale might indicate to the instructor that:

1. The course content needs to correspond more closely to the course and instructional objectives.
2. The course material was not well organized and not well presented.
3. The students' general knowledge and appreciation of the material has not been broadened.
4. The students are not able to apply what they were taught.
5. The course content is not current or relevant to student needs.
6. A substantial number of points were not clarified.
7. A substantial number of points were treated superficially.
8. Many irrelevant and unimportant points still appeared on the examinations.
9. The classroom course content was not well coordinated with the textbook, outside readings, etc.
10. The course material was uninteresting.
11. The material was too difficult to understand.
12. He/She confused the students with complex vocabulary.
13. His/Her presentation was incomprehensible.
14. He/She did not explain important points very well.

Interest and Attention

This represents the students' perception of how well the course and instructor were able to hold their interest and attention during the class sessions. Examples of some of the criteria they use in responding to each item in this subscale are the following:

Item 5: *"It was easy to remain attentive."*

In responding to this item students are indicating that (a) they were attentive 100% of the time, (b) they did not have to force themselves to be attentive, and (c) they had to be attentive because of what was on the examinations.

Item 10: *"The course was quite interesting."*

In responding to this item students are indicating that (a) they enjoyed listening to the lecture, (b) they did not watch the clock, (c) they enjoyed the course, (d) the instructor was interested in the course, (e) the course stimulated their curiosity, and (f) the course stimulated them to do further work in the field.

Item 17: *"Some days I was NOT very interested in this course."*

In responding to this item students are indicating that (a) their emotional problems had an affect, (b) the material was of no interest, (c) they were mentally exhausted from previous lectures that day, (d) the change in weather had an affect, (e) the instructor seemed preoccupied, and (f) events prior to the class had an affect.

Item 19: *"The course was quite boring."*

Students interpret this item as it is written.

Low decile ratings on this subscale might indicate to the instructor that:

1. He/She was not able to hold the students' attention for very long.
2. The material needs to be organized and presented in a more stimulating manner.
3. The lecture needs a touch of humor at strategic intervals.
4. All clocks and watches should be removed from the classroom.
5. More frequent student participation should be planned and encouraged.
6. The type and tone of the lectures needs to be varied.
7. Active learning experiences should be structured for the students.

Instructor

This represents the students' perception of the instructor's manner, personality, attitude, and effectiveness in the classroom. Examples of some of the criteria they use in responding to each item in this subscale are the following:

Item 3: *"The instructor seemed to be interested in students as individuals."*

In responding to this item students are indicating that the instructor (a) knew their names, (b) was willing to help them with their problems, (c) knew who they were outside of the classroom, (d) recognizes that students are having problems, (e) seems to respect student opinions, and (f) does not embarrass them by making them feel like dunces for asking certain questions or giving certain answers.

Item 9: *"The instructor did NOT synthesize, integrate, or summarize effectively."*

In responding to this item students are indicating that the instructor (a) did not repeat material at appropriate and necessary intervals, (b) was not able to put together the various components of the learning experience so that the students could make sense out of it, and (c) only presented the various components of the learning experience and expected the students to put them together in a meaningful manner.

Item 11: *"The instructor encouraged development of new viewpoints and appreciations."*

In responding to this item students are indicating that the instructor (a) encouraged them to go beyond what took place in the classroom by recognizing their efforts and (b) was open and receptive to their opinions in the classroom.

Item 14: *"The instructor demonstrated a thorough knowledge of the subject matter."*

In responding to this item students are indicating that the instructor (a) exhibited flexibility in his/her presentation, (b) used different methods of presenting materials, (c) did not read from a book to the class, (d) knew the sources, references, and location of additional learning materials, (e) was able to answer their questions, (f) was able to conduct an effective lecture, (g) gave clear-cut answers to their questions and did not try to "bluff" them, (h) was able to present different interpretations of the material, and (i) did not hesitate to admit lack of knowledge in particular areas.

Item 20: *"The instructor seemed to consider teaching as a chore or routine activity."*

In responding to this item students are indicating that the instructor (a) is exhibiting a "here-we-go-again" attitude, (b) is not exhibiting much enthusiasm toward the material, (c) is insensitive towards students' interests as they relate to the class, (d) tended to treat the classroom session more like a "bull session" rather than as a learning experience, and (e) wore a bored or uninterested expression in the classroom.

Low decile ratings on this subscale might indicate that the instructor:

1. Did not know the students' names.
2. Was unwilling to help students with their problems.
3. Did not recognize students outside of the classroom.
4. Was unaware when the students were having difficulty.
5. Did not respect the students' opinions.
6. Embarrassed students by making them feel like dunces for asking certain questions or giving certain answers.
7. Tended not to repeat material at appropriate and necessary intervals.
8. Did not integrate or synthesize the various components of the learning experience.
9. Discouraged the students from going beyond the material presented in the classroom.
10. Was not receptive to student opinions in the classroom.
11. Was rigid in the presentation of the course material.
12. Would read from a book to the class.
13. Did not know the sources, references, and locations of additional learning materials.
14. Was not able to answer the students' questions.
15. Was unable to conduct an effective lecture.
16. Did not give clear-cut answers and tried to "bluff" the students.
17. Tended to exhibit a "here-we-go-again" attitude.
18. Did not exhibit much enthusiasm towards the material.
19. Was insensitive towards students' interests as they related to the class.
20. Tended to treat the classroom session like a "bull session" rather than as a learning experience.
21. Created the impression of disinterest and boredom.

---

5. Concurrent with Step 4 you should also examine the responses students have made to the open-ended questions on the back of the form. This section provides students with a means of putting things "in their own words" and possibly expanding on questions asked on the front of the form. These responses may also be utilized in generating optional items for future use of the CIEQ in your classes.

6. If you do not feel, after going through this process, that the source of difficulty has been adequately identified, then other procedures (such as the use of additional diagnostic optional items, classroom visitation, video-taping, etc.) should be considered in future evaluations.

7. If you have administered the CIEQ to two or more similar sections then you may compare the decile ratings of one section to those of another section to determine what instructional behaviors may have led to the higher decile ratings in one section. You may also want to use the optional item section to gather additional evidence.

An example of successful use of the above procedures in improving college teaching can be found in Aleamoni's study entitled "The Usefulness of Student Evaluations in Improving College Teaching" (1978).

Normative Data

The normative data presented in this manual were collected at both the University of Arizona and the University of Illinois at Urbana-Champaign since 1972. To date approximately 15,917 course sections with a total of over 470,000 students represent the normative population. In addition, data on approximately 6,800 sections taught throughout the United States provide additional normative comparisons. Norms were based on class means; i.e., student ratings from a single class were averaged to obtain a class mean. Therefore, the distributions presented are those of class means.

In order for a given class to have been included in the norms, at least 50% of the students in that class had to complete the questionnaire. Also, no means known to be biased were included in the norms (e.g., data collected for experimental purposes). With these exceptions, all data collected from classes at the University of Arizona and from other schools were included in the norms. Norms for outside schools also include University of Arizona data.

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APPENDIX A

ARIZONA COURSE/INSTRUCTOR EVALUATION QUESTIONNAIRE

(Form 76)

ARIZONA COURSE/INSTRUCTOR EVALUATION QUESTIONNAIRE (CIEQ) (FORM 76)

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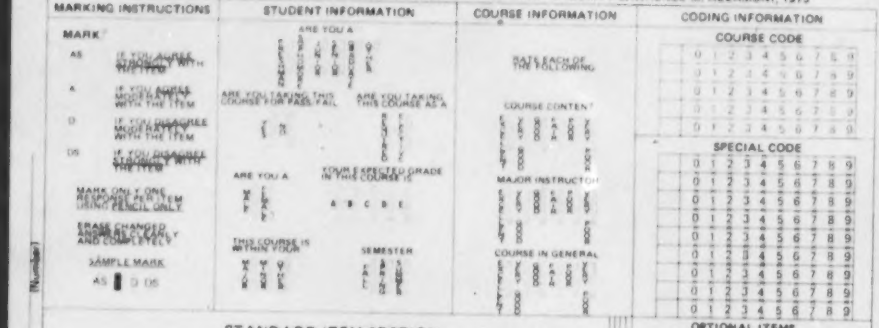
MARKING INSTRUCTIONS
STUDENT INFORMATION
COURSE INFORMATION
CODING INFORMATION
MARK
AS IF YOU AGREE STRONGLY WITH THE ITEM
A IF YOU AGREE MODERATELY WITH THE ITEM
D IF YOU DISAGREE MODERATELY WITH THE ITEM
DS IF YOU DISAGREE STRONGLY WITH THE ITEM
MARK ONLY ONE RESPONSE PER ITEM USING PENCIL ONLY
ERASE CHANGED ANSWERS CLEANLY AND COMPLETELY
SAMPLE MARK
AS A D DS
ARE YOU A
ARE YOU TAKING THIS COURSE FOR PASS/FAIL
ARE YOU TAKING THIS COURSE AS A
ARE YOU A
YOUR EXPECTED GRADE IN THIS COURSE IS
A B C D E
THIS COURSE IS WITHIN YOUR
SEMESTER
RATE EACH OF THE FOLLOWING
COURSE CONTENT
MAJOR INSTRUCTOR
COURSE IN GENERAL
COURSE CODE
SPECIAL CODE
(Number)
(Name)
THE NAME AND NUMBER OF THIS COURSE IS

STANDARD ITEM SECTION

1	It was a very worthwhile course.	AS A D DS
2	I would take another course that was taught this way.	AS A D DS
3	The instructor seemed to be interested in students as individuals.	AS A D DS
4	The course material was too difficult.	AS A D DS
5	It was easy to remain attentive.	AS A D DS
6	NOT much was gained by taking this course.	AS A D DS
7	I would have preferred another method of teaching in this course.	AS A D DS
8	The course material seemed worthwhile.	AS A D DS
9	The instructor did NOT synthesize, integrate or summarize effectively.	AS A D DS
10	The course was quite interesting.	AS A D DS
11	The instructor encouraged development of new viewpoints and appreciations.	AS A D DS
12	I learn more when other teaching methods are used.	AS A D DS
13	Some things were NOT explained very well.	AS A D DS
14	The instructor demonstrated a thorough knowledge of the subject matter.	AS A D DS
15	This was one of my poorest courses.	AS A D DS
16	The course content was excellent.	AS A D DS
17	Some days I was NOT very interested in this course.	AS A D DS
18	I think that the course was taught quite well.	AS A D DS
19	The course was quite boring.	AS A D DS
20	The instructor seemed to consider teaching as a chore or routine activity.	AS A D DS
21	Overall, the course was good.	AS A D DS

OPTIONAL ITEMS

SECTION I		SECTION II	
22	AS A D DS	43	A B C D E
23	AS A D DS	44	A B C D E
24	AS A D DS	45	A B C D E
25	AS A D DS	46	A B C D E
26	AS A D DS	47	A B C D E
27	AS A D DS	48	A B C D E
28	AS A D DS	49	A B C D E
29	AS A D DS	50	A B C D E
30	AS A D DS	51	A B C D E
31	AS A D DS	52	A B C D E
32	AS A D DS	53	A B C D E
33	AS A D DS	54	A B C D E
34	AS A D DS	55	A B C D E
35	AS A D DS	56	A B C D E
36	AS A D DS	57	A B C D E
37	AS A D DS	58	A B C D E
38	AS A D DS	59	A B C D E
39	AS A D DS	60	A B C D E
40	AS A D DS	61	A B C D E
41	AS A D DS	62	A B C D E
42	AS A D DS	63	A B C D E

PS 8400 FG (7/75) 8001 (C)

PLEASE FILL OUT THE OTHER SIDE

C I E Q

PLEASE USE THIS SIDE OF THE FORM FOR YOUR PERSONAL COMMENTS ON TEACHER EFFECTIVENESS AND GENERAL COURSE VALUE. YOUR INSTRUCTOR WILL NOT SEE YOUR COMPLETED EVALUATION UNTIL AFTER FINAL GRADES ARE IN FOR YOUR COURSE.

COURSE CONTENT

PLEASE GIVE YOUR COMMENTS ON THE COURSE CONTENT, SUBJECT MATTER AND ANY PARTICULAR RELEVANCE THIS COURSE HAS HAD TO YOUR AREA OF STUDY.

INSTRUCTORS

WRITE THE NAME OF YOUR PRINCIPAL INSTRUCTOR _____ T.A. _____

WHAT ARE YOUR GENERAL COMMENTS ABOUT THE INSTRUCTOR(S) IN THIS COURSE?

COURSE/INSTRUCTIONAL OBJECTIVES

WERE THE OBJECTIVES CLEARLY STATED FOR THIS COURSE? YES _____ NO _____ COMMENT:

PAPERS AND HOMEWORK

COMMENT ON THE VALUE OF BOOKS, HOMEWORK AND PAPERS (IF ANY) IN THIS COURSE.

EXAMINATIONS

COMMENT ON THE EXAMINATIONS AS TO DIFFICULTY, FAIRNESS, ETC.

GENERAL

1. WHAT IMPROVEMENTS WOULD YOU SUGGEST FOR THIS COURSE?

2. WHAT IS YOUR EVALUATION OF THIS COURSE BASED UPON (A) YOUR SATISFACTION WITH WHAT YOU GOT OUT OF THIS COURSE AND (B) WHETHER IT WAS A VALUABLE EDUCATIONAL EXPERIENCE OR A DISAPPOINTMENT? PLEASE COMMENT.

29

PLEASE FILL OUT THE OTHER SIDE

APPENDIX B*

Decile Norm Cutoff Scores

for CIEQ Subscales from University of Arizona Data

*All appendices use the following abbreviations for CIEQ subscales:

GCA - General Course Attitude
MI - Method of Instruction
CC - Course Content
I&A - Interest and Attention
I - Instructor

Table 7
Raw Score Intervals for CIEQ Subscale Means Based on
5,189 Class Sections
at the University of Arizona

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.685	2.895	3.045	3.165	3.265	3.365	3.455	3.565	3.685	4.000	3.228	.392
MI	1.000	2.315	2.565	2.735	2.865	2.965	3.075	3.175	3.295	3.425	4.000	2.931	.430
CC	1.000	2.565	2.715	2.815	2.905	2.995	3.085	3.165	3.265	3.395	4.000	3.000	.323
I&A	1.000	2.265	2.475	2.635	2.765	2.875	2.985	3.095	3.205	3.355	4.000	2.852	.421
I	1.000	2.775	2.955	3.085	3.185	3.265	3.345	3.435	3.515	3.625	4.000	3.240	.340
TOTAL	1.000	2.555	2.745	2.885	2.985	3.085	3.175	3.265	3.365	3.485	4.000	3.059	.359

APPENDIX C*

Decile Norm Cutoff Scores

for CIEQ Subscales Within Course Levels

from University of Arizona Data

*See p. 31 for the list of abbreviations used for CIEQ subscales.

Table 8

Raw Score Intervals for CIEQ Subscale Means Based on
1,241 Freshman Class Sections
at the University of Arizona

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.635	2.825	2.965	3.075	3.175	3.265	3.375	3.465	3.585	4.000	3.151	.368
MI	1.000	2.305	2.525	2.695	2.825	2.925	3.045	3.145	3.245	3.385	4.000	2.896	.409
CC	1.000	2.515	2.655	2.745	2.825	2.905	2.985	3.085	3.185	3.325	4.000	2.926	.308
I&A	1.000	2.215	2.405	2.545	2.655	2.775	2.885	2.995	3.125	3.265	4.000	2.765	.400
I	1.000	2.725	2.885	3.015	3.125	3.205	3.285	3.365	3.445	3.535	4.000	3.173	.327
TOTAL	1.000	2.505	2.685	2.805	2.925	2.995	3.095	3.195	3.285	3.405	4.000	2.992	.342

Table 9

Raw Score Intervals for CIEQ Subscale Means Based on
952 Sophomore Class Sections
at the University of Arizona

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.655	2.865	2.985	3.085	3.195	3.285	3.395	3.495	3.605	4.000	3.169	.372
MI	1.000	2.245	2.545	2.695	2.815	2.905	3.025	3.125	3.215	3.345	4.000	2.880	.411
CC	1.000	2.505	2.665	2.765	2.845	2.935	3.015	3.095	3.185	3.335	4.000	2.932	.315
I&A	1.000	2.205	2.405	2.545	2.675	2.795	2.905	3.015	3.135	3.265	4.000	2.778	.412
I	1.000	2.755	2.925	3.055	3.145	3.235	3.315	3.385	3.455	3.565	4.000	3.203	.322
TOTAL	1.000	2.515	2.695	2.825	2.925	3.025	3.115	3.195	3.285	3.405	4.000	3.002	.342

Table 10

Raw Score Intervals for CIEQ Subscale Means Based on
1,146 Junior Class Sections
at the University of Arizona

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.685	2.875	3.035	3.165	3.265	3.365	3.445	3.535	3.665	4.000	3.216	.394
MI	1.000	2.305	2.555	2.725	2.855	2.955	3.065	3.165	3.295	3.415	4.000	2.921	.435
CC	1.000	2.565	2.725	2.825	2.915	3.005	3.085	3.155	3.245	3.375	4.000	2.993	.316
I&A	1.000	2.245	2.475	2.625	2.745	2.875	2.975	3.075	3.175	3.315	4.000	2.835	.421
I	1.000	2.775	2.965	3.075	3.185	3.265	3.345	3.435	3.525	3.625	4.000	3.240	.342
TOTAL	1.000	2.555	2.745	2.875	2.975	3.075	3.175	3.255	3.355	3.455	4.000	3.050	.360

Table 11
Raw Score Intervals for CIEQ Subscale Means Based on
1,034 Senior Class Sections
at the University of Arizona

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.765	3.015	3.145	3.255	3.355	3.435	3.535	3.615	3.715	4.000	3.309	.377
MI	1.000	2.395	2.625	2.785	2.915	3.025	3.135	3.245	3.345	3.495	4.000	2.986	.432
CC	1.000	2.655	2.805	2.895	2.985	3.075	3.165	3.245	3.325	3.465	4.000	3.071	.316
I&A	1.000	2.365	2.595	2.755	2.865	2.975	3.055	3.165	3.285	3.415	4.000	2.940	.403
I	1.000	2.825	3.015	3.135	3.235	3.325	3.405	3.485	3.585	3.665	4.000	3.295	.335
TOTAL	1.000	2.615	2.835	2.965	3.065	3.155	3.245	3.335	3.425	3.525	4.000	3.129	.349

Table 12
Raw Score Intervals for CIEQ Subscale Means Based on
809 Graduate Class Sections
at the University of Arizona

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.705	2.995	3.135	3.275	3.385	3.495	3.605	3.685	3.785	4.000	3.326	.430
MI	1.000	2.335	2.635	2.785	2.915	3.035	3.135	3.265	3.385	3.525	4.000	2.989	.463
CC	1.000	2.645	2.795	2.925	3.025	3.105	3.185	3.285	3.375	3.495	4.000	3.099	.327
I&A	1.000	2.385	2.625	2.775	2.885	3.015	3.125	3.245	3.355	3.495	4.000	2.984	.435
I	1.000	2.825	3.025	3.155	3.265	3.355	3.435	3.525	3.595	3.715	4.000	3.314	.355
TOTAL	1.000	2.625	2.845	2.985	3.095	3.175	3.275	3.375	3.485	3.585	4.000	3.151	.379

APPENDIX D*

Decile Norm Cutoff Scores

for CIEQ Subscales Within Instructor Rank

from University of Arizona Data

*See p. 31 for the list of abbreviations used for CIEQ subscales.

Table 13

Raw Score Intervals for CIEQ Subscale Means Based on
1,186 Class Sections Taught by Graduate Teaching Assistants
at the University of Arizona

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.645	2.825	2.935	3.025	3.125	3.205	3.295	3.405	3.535	4.000	3.112	.349
MI	1.000	2.265	2.485	2.645	2.765	2.875	2.965	3.075	3.185	3.325	4.000	2.840	.416
CC	1.000	2.505	2.635	2.705	2.775	2.855	2.925	2.995	3.105	3.255	4.000	2.876	.294
I&A	1.000	2.225	2.405	2.515	2.625	2.715	2.815	2.915	3.035	3.185	4.000	2.724	.372
I	1.000	2.655	2.855	2.975	3.075	3.155	3.235	3.335	3.395	3.525	4.000	3.129	.341
TOTAL	1.000	2.505	2.675	2.775	2.865	2.945	3.025	3.115	3.215	3.345	4.000	2.945	.329

Table 14

Raw Score Intervals for CIEQ Subscale Means Based on
444 Class Sections Taught by Instructors
at the University of Arizona

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.675	2.885	3.065	3.175	3.295	3.405	3.495	3.595	3.715	4.000	3.246	.409
MI	1.000	2.395	2.605	2.775	2.925	3.005	3.085	3.215	3.325	3.445	4.000	2.973	.418
CC	1.000	2.555	2.725	2.845	2.935	3.035	3.125	3.195	3.325	3.425	4.000	3.025	.340
I&A	1.000	2.325	2.485	2.675	2.785	2.945	3.035	3.155	3.265	3.395	4.000	2.900	.430
I	1.000	2.805	2.955	3.095	3.185	3.285	3.375	3.445	3.545	3.645	4.000	3.259	.341
TOTAL	1.000	2.575	2.735	2.915	3.025	3.125	3.205	3.315	3.405	3.515	4.000	3.089	.366

Table 15

Raw Score Intervals for CIEQ Subscale Means Based on
831 Class Sections Taught by Assistant Professors
at the University of Arizona

Subscale	Decile											Mean	S.D.
	0	1	2	3	4	5	6	7	8	9			
GCA	1.000	2.705	2.925	3.075	3.205	3.305	3.395	3.485	3.575	3.695	4.000	3.251	.397
MI	1.000	2.315	2.625	2.745	2.865	2.975	3.085	3.185	3.305	3.425	4.000	2.946	.419
CC	1.000	2.595	2.745	2.855	2.945	3.025	3.105	3.185	3.285	3.415	4.000	3.019	.319
I&A	1.000	2.305	2.535	2.685	2.815	2.905	3.005	3.125	3.245	3.355	4.000	2.882	.415
I	1.000	2.805	2.975	3.115	3.215	3.305	3.375	3.455	3.545	3.635	4.000	3.267	.332
TOTAL	1.000	2.595	2.785	2.905	3.005	3.105	3.195	3.285	3.385	3.495	4.000	3.082	.352

Table 16

Raw Score Intervals for CIEQ Subscale Means Based on
874 Class Sections Taught by Associate Professors
at the University of Arizona

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.795	2.995	3.145	3.245	3.335	3.425	3.505	3.595	3.705	4.000	3.298	.363
MI	1.000	2.415	2.665	2.825	2.935	3.035	3.125	3.245	3.325	3.435	4.000	2.996	.399
CC	1.000	2.665	2.815	2.905	2.995	3.055	3.135	3.205	3.285	3.425	4.000	3.060	.297
I&A	1.000	2.375	2.595	2.745	2.855	2.945	3.045	3.135	3.245	3.375	4.000	2.922	.399
I	1.000	2.905	3.005	3.185	3.265	3.345	3.405	3.475	3.565	3.655	4.000	3.317	.294
TOTAL	1.000	2.665	2.845	2.975	3.075	3.145	3.225	3.315	3.405	3.495	4.000	3.128	.327

Table 17

Raw Score Intervals for CIEQ Subscale Means Based on
1,383 Class Sections Taught by Professors
at the University of Arizona

Subscale	Decile											Mean	S.D.
	0	1	2	3	4	5	6	7	8	9			
GCA	1.000	2.675	2.955	3.085	3.215	3.315	3.405	3.495	3.595	3.705	4.000	3.259	.410
MI	1.000	2.315	2.565	2.745	2.875	2.985	3.095	3.205	3.315	3.475	4.000	2.946	.451
CC	1.000	2.585	2.765	2.865	2.955	3.055	3.135	3.225	3.305	3.415	4.000	3.038	.324
I&A	1.000	2.245	2.525	2.685	2.825	2.925	3.035	3.135	3.245	3.385	4.000	2.889	.434
I	1.000	2.795	2.975	3.095	3.205	3.295	3.375	3.445	3.535	3.645	4.000	3.260	.344
TOTAL	1.000	2.555	2.775	2.915	3.025	3.115	3.215	3.305	3.395	3.505	4.000	3.087	.373

APPENDIX E*

Decile Norm Cutoff Scores

for CIEQ Subscales by Proportion of Required Enrollment

from University of Illinois Data

*See p. 31 for the list of abbreviations used for CIEQ subscales.

Table 18

Overall and Level Norms for Classes with Between 0% - 33% of Students Required to Take the Course

Subscale	Course Level*	Decile 0	1	2	3	4	5	6	7	8	9	Mean	S.D.
GCA	Overall	1.000	2.855	3.065	3.195	3.285	3.365	3.445	3.535	3.635	3.745	4.000	
	A	1.000	2.805	3.055	3.205	3.295	3.365	3.435	3.525	3.585	3.695	4.000	
	B	1.000	2.835	3.025	3.125	3.215	3.295	3.375	3.495	3.555	3.695	4.000	
	C	1.000	2.915	3.115	3.205	3.275	3.355	3.435	3.555	3.675	3.785	4.000	
	D	1.000	3.005	3.135	3.285	3.375	3.495	3.555	3.645	3.795	3.895	4.000	
MI	Overall	1.000	2.615	2.805	2.935	3.055	3.165	3.245	3.325	3.415	3.555	4.000	
	A	1.000	2.605	2.855	2.995	3.095	3.185	3.265	3.335	3.425	3.525	4.000	
	B	1.000	2.545	2.765	2.925	2.995	3.085	3.175	3.245	3.345	3.495	4.000	
	C	1.000	2.655	2.775	2.905	3.015	3.145	3.245	3.325	3.425	3.575	4.000	
	D	1.000	2.615	2.765	2.955	3.095	3.245	3.325	3.385	3.495	3.655	4.000	
CC	Overall	1.000	2.805	2.955	3.025	3.125	3.195	3.265	3.325	3.395	3.525	4.000	
	A	1.000	2.775	2.935	3.025	3.135	3.215	3.265	3.315	3.385	3.495	4.000	
	B	1.000	2.725	2.935	3.005	3.085	3.175	3.215	3.255	3.325	3.435	4.000	
	C	1.000	2.835	2.965	3.025	3.095	3.175	3.245	3.315	3.395	3.555	4.000	
	D	1.000	2.885	3.015	3.085	3.195	3.295	3.345	3.425	3.495	3.685	4.000	
I&A	Overall	1.000	2.525	2.745	2.875	2.995	3.095	3.175	3.275	3.365	3.495	4.000	
	A	1.000	2.495	2.785	2.925	3.025	3.125	3.195	3.285	3.335	3.455	4.000	
	B	1.000	2.465	2.665	2.775	2.885	3.005	3.075	3.155	3.275	3.425	4.000	
	C	1.000	2.645	2.785	2.865	2.975	3.085	3.185	3.255	3.375	3.535	4.000	
	D	1.000	2.665	2.835	2.935	3.055	3.175	3.275	3.365	3.465	3.635	4.000	
I	Overall	1.000	2.975	3.135	3.245	3.315	3.385	3.445	3.505	3.585	3.705	4.000	
	A	1.000	2.995	3.145	3.225	3.275	3.345	3.405	3.465	3.525	3.615	4.000	
	B	1.000	2.835	3.035	3.165	3.245	3.325	3.405	3.495	3.555	3.665	4.000	
	C	1.000	3.045	3.165	3.285	3.355	3.425	3.475	3.545	3.615	3.745	4.000	
	D	1.000	2.995	3.255	3.345	3.405	3.475	3.545	3.585	3.685	3.775	4.000	
TOTAL	Overall	1.000	2.795	2.965	3.075	3.175	3.255	3.325	3.405	3.485	3.595	4.000	
	A	1.000	2.795	2.985	3.095	3.195	3.265	3.315	3.375	3.455	3.535	4.000	
	B	1.000	2.645	2.915	2.995	3.105	3.175	3.265	3.355	3.425	3.545	4.000	
	C	1.000	2.835	2.985	3.085	3.145	3.245	3.325	3.425	3.505	3.655	4.000	
	D	1.000	2.855	2.995	3.165	3.255	3.355	3.425	3.505	3.575	3.715	4.000	

* A = Freshman/Sophomore C = Junior/Senior
B = Sophomore/Junior D = Senior/Graduate

Table 19

Overall and Level Norms for Classes with Between 34% - 66% of Students Required to Take the Course

Subscale	Course Level*	Decile										Mean	S.D.
		0	1	2	3	4	5	6	7	8	9		
GCA	Overall	1.000	2.585	2.825	2.935	3.035	3.125	3.215	3.315	3.415	3.555	4.000	
	A	1.000	2.505	2.705	2.845	2.975	3.055	3.125	3.215	3.315	3.455	4.000	
	B	1.000	2.625	2.835	2.905	3.005	3.115	3.215	3.305	3.415	3.505	4.000	
	C	1.000	2.855	2.995	3.105	3.155	3.245	3.345	3.435	3.535	3.625	4.000	
	D	1.000	2.775	2.995	3.135	3.215	3.285	3.375	3.495	3.615	3.785	4.000	
MI	Overall	1.000	2.395	2.625	2.735	2.865	2.965	3.045	3.125	3.225	3.365	4.000	
	A	1.000	2.285	2.575	2.715	2.835	2.945	3.005	3.095	3.205	3.325	4.000	
	B	1.000	2.425	2.625	2.695	2.815	2.945	3.035	3.095	3.175	3.345	4.000	
	C	1.000	2.535	2.715	2.865	2.945	3.025	3.105	3.215	3.335	3.465	4.000	
	D	1.000	2.445	2.645	2.675	2.965	3.075	3.125	3.205	3.275	3.475	4.000	
CC	Overall	1.000	2.605	2.745	2.825	2.915	2.985	3.045	3.115	3.125	3.335	4.000	
	A	1.000	2.535	2.665	2.765	2.845	2.915	2.995	3.035	3.115	3.245	4.000	
	B	1.000	2.635	2.745	2.815	2.885	2.995	3.045	3.115	3.205	3.285	4.000	
	C	1.000	2.785	2.845	2.935	3.015	3.085	3.135	3.225	3.335	3.405	4.000	
	D	1.000	2.725	2.925	3.015	3.035	3.135	3.215	3.295	3.395	3.535	4.000	
I&A	Overall	1.000	2.255	2.465	2.585	2.685	2.775	2.885	2.995	3.115	3.275	4.000	
	A	1.000	2.125	2.415	2.515	2.615	2.695	2.785	2.895	3.045	3.185	4.000	
	B	1.000	2.295	2.405	2.575	2.655	2.755	2.835	2.935	3.075	3.215	4.000	
	C	1.000	2.445	2.655	2.745	2.835	2.955	3.005	3.105	3.255	3.365	4.000	
	D	1.000	2.545	2.725	2.795	2.925	3.035	3.085	3.215	3.335	3.505	4.000	
I	Overall	1.000	2.805	2.995	3.095	3.175	3.245	3.315	3.405	3.495	3.595	4.000	
	A	1.000	2.695	2.905	3.025	3.115	3.205	3.295	3.365	3.465	3.585	4.000	
	B	1.000	2.855	2.995	3.105	3.175	3.215	3.275	3.335	3.485	3.565	4.000	
	C	1.000	2.965	3.055	3.125	3.215	3.315	3.375	3.435	3.525	3.655	4.000	
	D	1.000	3.055	3.195	3.285	3.385	3.435	3.495	3.525	3.545	3.665	4.000	
TOTAL	Overall	1.000	2.565	2.765	2.865	2.955	3.045	3.125	3.195	3.315	3.535	4.000	
	A	1.000	2.425	2.695	2.815	2.885	2.975	3.055	3.165	3.235	3.355	4.000	
	B	1.000	2.605	2.775	2.845	2.945	3.025	3.085	3.135	3.305	3.395	4.000	
	C	1.000	2.765	2.885	2.985	3.065	3.125	3.185	3.315	3.405	3.525	4.000	
	D	1.000	2.855	2.945	3.025	3.125	3.215	3.265	3.375	3.455	3.545	4.000	

* A = Freshman/Sophomore C = Junior/Senior
B = Sophomore/Junior D = Senior/Graduate

Table 20

Overall and Level Norms for Classes with Between 67% - 100% of Students Required to Take the Course

Subscale	Course Level*	Decile 0	1	2	3	4	5	6	7	8	9	Mean	S.D.
GCA	Overall	1.000	2.355	2.605	2.755	2.885	2.995	3.105	3.225	3.335	3.525	4.000	
	A	1.000	2.295	2.535	2.695	2.805	2.895	3.015	3.135	3.245	3.405	4.000	
	B	1.000	2.425	2.685	2.785	2.965	3.045	3.135	3.245	3.385	3.575	4.000	
	C	1.000	2.685	2.825	3.015	3.145	3.225	3.285	3.415	3.525	3.615	4.000	
	D	1.000	2.365	2.595	2.925	2.995	3.145	3.315	3.525	3.745	3.795	4.000	
MI	Overall	1.000	2.255	2.505	2.675	2.805	2.925	3.025	3.125	3.245	3.385	4.000	
	A	1.000	2.245	2.475	2.635	2.765	2.885	2.995	3.085	3.205	3.345	4.000	
	B	1.000	2.245	2.545	2.665	2.815	2.935	3.055	3.155	3.265	3.415	4.000	
	C	1.000	2.405	2.595	2.755	2.935	3.045	3.125	3.225	3.305	3.415	4.000	
	D	1.000	1.995	2.325	2.675	2.765	2.975	3.025	3.245	3.405	3.535	4.000	
CC	Overall	1.000	2.425	2.605	2.695	2.775	2.865	2.965	3.035	3.145	3.275	4.000	
	A	1.000	2.375	2.545	2.635	2.715	2.785	2.865	2.965	3.035	3.185	4.000	
	B	1.000	2.535	2.665	2.755	2.845	2.925	3.025	3.065	3.215	3.365	4.000	
	C	1.000	2.605	2.775	2.905	2.995	3.035	3.115	3.205	3.285	3.355	4.000	
	D	1.000	2.535	2.715	2.825	2.895	3.025	3.095	3.225	3.365	3.545	4.000	
I&A	Overall	1.000	2.045	2.275	2.435	2.575	2.685	2.795	2.885	3.015	3.215	4.000	
	A	1.000	1.995	2.205	2.355	2.495	2.615	2.725	2.825	2.925	3.095	4.000	
	B	1.000	2.115	2.275	2.475	2.605	2.695	2.815	2.915	3.045	3.245	4.000	
	C	1.000	2.245	2.495	2.625	2.765	2.865	2.995	3.095	3.195	3.305	4.000	
	D	1.000	2.005	2.365	2.645	2.745	2.875	2.995	3.115	3.375	3.575	4.000	
I	Overall	1.000	2.755	2.935	3.055	3.165	3.255	3.325	3.405	3.485	3.595	4.000	
	A	1.000	2.755	2.925	3.045	3.125	3.235	3.305	3.385	3.465	3.565	4.000	
	B	1.000	2.785	2.925	3.025	3.135	3.255	3.335	3.415	3.515	3.615	4.000	
	C	1.000	2.835	3.045	3.195	3.255	3.315	3.375	3.425	3.505	3.625	4.000	
	D	1.000	2.645	2.765	2.995	3.155	3.285	3.345	3.495	3.655	3.845	4.000	
TOTAL	Overall	1.000	2.415	2.625	2.755	2.865	2.985	3.065	3.155	3.265	3.395	4.000	
	A	1.000	2.395	2.575	2.725	2.815	2.925	3.015	3.105	3.205	3.345	4.000	
	B	1.000	2.465	2.665	2.755	2.885	3.005	3.075	3.165	3.275	3.465	4.000	
	C	1.000	2.595	2.815	2.925	3.035	3.115	3.195	3.295	3.375	3.445	4.000	
	D	1.000	2.385	2.565	2.805	2.975	3.085	3.215	3.355	3.445	3.695	4.000	

* A = Freshman/Sophomore C = Junior/Senior
B = Sophomore/Junior D = Senior/Graduate

APPENDIX F

Decile Norm Cutoff Scores
for CIEQ Items at the University of Arizona

Table 21

Raw Score Intervals for CIEQ Item Means Based on
5,189 Class Sections at the University of Arizona

Item	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
1	1.000	2.665	2.885	3.035	3.155	3.265	3.375	3.465	3.565	3.705	4.000	3.231	.408
2	1.000	2.345	2.625	2.795	2.925	3.055	3.165	3.285	3.415	3.575	4.000	3.016	.472
3	1.000	2.725	2.965	3.105	3.235	3.345	3.445	3.555	3.665	3.785	4.000	3.301	.416
4	1.000	2.745	2.895	2.995	3.075	3.145	3.215	3.305	3.395	3.545	4.000	3.155	.308
5	1.000	2.225	2.495	2.665	2.795	2.915	2.995	3.135	3.255	3.405	4.000	2.882	.453
6	1.000	2.725	2.935	3.085	3.205	3.315	3.405	3.495	3.595	3.745	4.000	3.273	.399
7	1.000	2.215	2.495	2.645	2.795	2.905	2.995	3.125	3.245	3.395	4.000	2.867	.461
8	1.000	2.795	2.955	3.055	3.145	3.225	3.305	3.385	3.495	3.625	4.000	3.220	.330
9	1.000	2.535	2.775	2.935	3.055	3.165	3.265	3.375	3.475	3.595	4.000	3.122	.421
10	1.000	2.455	2.675	2.835	2.995	3.085	3.195	3.305	3.425	3.575	4.000	3.059	.435

Table 21 (continued)

Item	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
11	1.000	2.495	2.695	2.825	2.935	3.045	3.165	3.265	3.395	3.565	4.000	3.048	.415
12	1.000	2.245	2.475	2.625	2.745	2.845	2.935	3.035	3.145	3.285	4.000	2.817	.407
13	1.000	2.025	2.265	2.435	2.565	2.685	2.815	2.935	3.065	3.245	4.000	2.675	.462
14	1.000	2.975	3.165	3.295	3.395	3.495	3.575	3.665	3.735	3.835	4.000	3.444	.360
15	1.000	2.625	2.855	2.995	3.125	3.225	3.325	3.435	3.545	3.665	4.000	3.194	.416
16	1.000	2.335	2.555	2.705	2.825	2.975	3.075	3.175	3.315	3.495	4.000	2.940	.443
17	1.000	1.785	1.965	2.095	2.205	2.325	2.445	2.575	2.715	2.925	4.000	2.358	.442
18	1.000	2.365	2.645	2.825	2.965	3.075	3.175	3.295	3.415	3.565	4.000	3.029	.461
19	1.000	2.495	2.745	2.905	3.035	3.155	3.255	3.375	3.495	3.625	4.000	3.111	.444
20	1.000	2.765	2.995	3.105	3.215	3.325	3.395	3.495	3.595	3.705	4.000	3.280	.381
21	1.000	2.605	2.865	2.995	3.145	3.255	3.355	3.465	3.575	3.695	4.000	3.213	.425

APPENDIX G*

Decile Norm Cutoff Scores

for CIEQ Subscales Based on Data from All CIEQ User Institutions

*See p. 31 for the list of abbreviations used for CIEQ subscales.

Table 22

Raw Score Intervals for CIEQ Subscale Means Based on
19,563 Class Sections
at All CIEQ User Institutions

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.626	2.851	3.001	3.121	3.221	3.321	3.418	3.528	3.663	4.000	3.185	.394
MI	1.000	2.366	2.616	2.772	2.902	3.009	3.112	3.212	3.317	3.454	4.000	2.964	.419
CC	1.000	2.580	2.737	2.844	2.934	3.017	3.100	3.187	3.287	3.417	4.000	3.015	.315
I&A	1.000	2.250	2.482	2.635	2.765	2.882	2.992	3.102	3.227	3.377	4.000	2.855	.427
I	1.000	2.812	2.999	3.122	3.214	3.294	3.374	3.450	3.530	3.640	4.000	3.264	.318
TOTAL	1.000	2.562	2.760	2.900	3.007	3.100	3.190	3.280	3.380	3.507	4.000	3.071	.356

APPENDIX H*

Decile Norm Cutoff Scores

for CIEQ Subscales Within Course Levels

Based on Data from All CIEQ User Institutions

*See p. 31 for the list of abbreviations used for CIEQ subscales.

Table 23

Raw Score Intervals for CIEQ Subscale Means Based on
7,622 Freshman Class Sections
at CIEQ User Institutions

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.568	2.775	2.923	3.042	3.142	3.248	3.350	3.457	3.593	4.000	3.115	.389
MI	1.000	2.364	2.600	2.762	2.892	2.992	3.095	3.195	3.304	3.427	4.000	2.952	.407
CC	1.000	2.523	2.672	2.778	2.867	2.955	3.035	3.135	3.235	3.375	4.000	2.957	.316
I&A	1.000	2.190	2.413	2.562	2.688	2.808	2.927	3.045	3.184	3.332	4.000	2.794	.433
I	1.000	2.792	2.977	3.099	3.192	3.264	3.335	3.415	3.495	3.594	4.000	3.231	.312
TOTAL	1.000	2.522	2.718	2.847	2.958	3.054	3.145	3.237	3.335	3.455	4.000	3.027	.353

Table 24

Raw Score Intervals for CIEQ Subscale Means Based on
4,421 Sophomore Class Sections
at CIEQ User Institutions

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.631	2.865	3.001	3.109	3.203	3.293	3.387	3.495	3.621	4.000	3.170	.381
MI	1.000	2.363	2.623	2.766	2.893	2.991	3.096	3.180	3.286	3.423	4.000	2.950	.408
CC	1.000	2.599	2.751	2.851	2.931	3.013	3.086	3.158	3.248	3.382	4.000	3.004	.305
I&A	1.000	2.252	2.476	2.616	2.746	2.850	2.952	3.054	3.174	3.320	4.000	2.826	.414
I	1.000	2.810	2.980	3.102	3.192	3.274	3.354	3.424	3.510	3.620	4.000	3.247	.316
TOTAL	1.000	2.562	2.758	2.880	2.988	3.080	3.162	3.250	3.348	3.468	4.000	3.053	.349

Table 25
Raw Score Intervals for CIEQ Subscale Means Based on
4,834 Junior/Senior Class Sections
at CIEQ User Institutions

Subscales	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.708	2.932	3.080	3.195	3.295	3.385	3.481	3.574	3.698	4.000	3.252	.391
MI	1.000	2.374	2.630	2.793	2.923	3.025	3.124	3.226	3.339	3.476	4.000	2.982	.433
CC	1.000	2.639	2.797	2.895	2.985	3.069	3.152	3.229	3.317	3.444	4.000	3.059	.318
I&A	1.000	2.320	2.556	2.713	2.826	2.940	3.036	3.144	3.253	3.408	4.000	2.910	.419
I	1.000	2.857	3.036	3.148	3.245	3.327	3.402	3.479	3.571	3.661	4.000	3.296	.325
TOTAL	1.000	2.696	2.814	2.949	3.049	3.142	3.228	3.316	3.414	3.525	4.000	3.112	.360

Table 26

Raw Score Intervals for CIEQ Subscale Means Based on
2,181 Graduate Class Sections
at CIEQ User Institutions

Subscales	Decile											Mean	S.D.
	0	1	2	3	4	5	6	7	8	9			
GCA	1.000	2.730	2.995	3.135	3.262	3.372	3.489	3.586	3.679	3.791	4.000	3.321	.424
MI	1.000	2.366	2.648	2.804	2.940	3.060	3.166	3.284	3.404	3.550	4.000	3.011	.465
CC	1.000	2.689	2.845	2.969	3.056	3.136	3.223	3.316	3.413	3.526	4.000	3.134	.328
I&A	1.000	2.429	2.656	2.800	2.916	3.028	3.150	3.258	3.380	3.520	4.000	3.009	.433
I	1.000	2.869	3.082	3.212	3.309	3.386	3.466	3.550	3.626	3.734	4.000	3.348	.344
TOTAL	1.000	2.650	2.864	3.010	3.120	3.206	3.300	3.406	3.510	3.604	4.000	3.176	.379

APPENDIX I*

Decile Norm Cutoff Scores

for CIEQ Subscales Within Instructor Rank

Based on Data from All CIEQ User Institutions

*See p. 31 for the list of abbreviations used for CIEQ subscales.

Table 27

Raw Score Intervals for CIEQ Subscale Means Based on
4,901 Class Sections Taught by Graduate Teaching Assistants
at CIEQ User Institutions

Subscale	Decile											Mean	S.D.
	0	1	2	3	4	5	6	7	8	9			
GCA	1.000	2.506	2.704	2.844	2.949	3.049	3.144	3.242	3.360	3.512	4.000	3.034	.388
MI	1.000	2.326	2.553	2.706	2.826	2.928	3.026	3.128	3.230	3.355	4.000	2.892	.404
CC	1.000	2.475	2.620	2.705	2.783	2.870	2.940	3.025	3.128	3.270	4.000	2.878	.308
I&A	1.000	2.142	2.344	2.485	2.595	2.700	2.807	2.915	3.043	3.223	4.000	2.700	.413
I	1.000	2.731	2.908	3.028	3.128	3.208	3.280	3.365	3.448	3.555	4.000	3.177	.326
TOTAL	1.000	2.475	2.660	2.783	2.880	2.968	3.055	3.145	3.245	3.375	4.000	2.955	.347

Table 28

Raw Score Intervals for CIEQ Subscale Means Based on
1,583 Class Sections Taught by Instructors
at CIEQ User Institutions

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.733	2.979	3.108	3.218	3.324	3.412	3.502	3.595	3.701	4.000	3.275	.375
MI	1.000	2.460	2.706	2.854	2.983	3.091	3.186	3.294	3.390	3.510	4.000	3.044	.415
CC	1.000	2.663	2.819	2.924	3.020	3.103	3.183	3.260	3.361	3.468	4.000	3.090	.318
I&A	1.000	2.397	2.615	2.769	2.871	2.995	3.100	3.205	3.315	3.445	4.000	2.966	.413
I	1.000	2.870	3.041	3.167	3.257	3.343	3.418	3.488	3.567	3.659	4.000	3.308	.322
TOTAL	1.000	2.648	2.843	2.988	3.090	3.183	3.270	3.365	3.441	3.558	4.000	3.149	.351

Table 29
Raw Score Intervals for CIEQ Subscale Means Based on
4,262 Class Sections Taught by Assistant Professors
at CIEQ User Institutions

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.673	2.909	3.043	3.165	3.257	3.347	3.445	3.543	3.663	4.000	3.218	.386
MI	1.000	2.396	2.657	2.817	2.938	3.039	3.133	3.225	3.329	3.465	4.000	2.991	.416
CC	1.000	2.635	2.793	2.895	2.985	3.057	3.129	3.217	3.309	3.423	4.000	3.049	.307
I&A	1.000	2.321	2.551	2.709	2.815	2.921	3.021	3.141	3.253	3.387	4.000	2.896	.416
I	1.000	2.886	3.064	3.171	3.255	3.329	3.399	3.479	3.561	3.659	4.000	3.302	.307
TOTAL	1.000	2.611	2.825	2.953	3.045	3.129	3.219	3.309	3.401	3.519	4.000	3.105	.349

Table 30

Raw Score Intervals for CIEQ Subscale Means Based on
2,861 Class Sections Taught by Associate Professors
at CIEQ User Institutions

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.767	2.960	3.103	3.203	3.300	3.397	3.477	3.574	3.705	4.000	3.265	.379
MI	1.000	2.429	2.679	2.818	2.942	3.049	3.139	3.252	3.353	3.477	4.000	3.003	.416
CC	1.000	2.672	2.829	2.926	3.016	3.083	3.163	3.240	3.333	3.460	4.000	3.080	.306
I&A	1.000	2.375	2.581	2.731	2.848	2.945	3.052	3.156	3.266	3.424	4.000	2.927	.411
I	1.000	2.898	3.078	3.185	3.272	3.356	3.419	3.489	3.572	3.662	4.000	3.317	.307
TOTAL	1.000	2.658	2.845	2.968	3.075	3.159	3.246	3.329	3.426	3.530	4.000	3.131	.347

Table 31
Raw Score Intervals for CIEQ Subscale Means Based on
3,294 Class Sections Taught by Professors
at CIEQ User Institutions

Subscale	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
GCA	1.000	2.681	2.932	3.068	3.186	3.286	3.382	3.472	3.578	3.705	4.000	3.241	.399
MI	1.000	2.327	2.606	2.768	2.898	3.014	3.118	3.228	3.332	3.488	4.000	2.967	.448
CC	1.000	2.684	2.788	2.894	2.984	3.072	3.152	3.237	3.322	3.444	4.000	3.060	.319
I&A	1.000	2.268	2.537	2.691	2.819	2.931	3.035	3.147	3.251	3.456	4.000	2.898	.437
I	1.000	2.836	3.016	3.141	3.234	3.318	3.392	3.462	3.552	3.662	4.000	3.283	.334
TOTAL	1.000	2.572	2.798	2.932	3.037	3.132	3.227	3.317	3.412	3.528	4.000	3.102	.372

APPENDIX J

Decile Norm Cutoff Scores

for CIEQ Items Based on Data from All CIEQ User Institutions

Table 32
Raw Score Intervals for CIEQ Item Means Based on
19,563 Class Sections at CIEQ User Institutions

Item	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
1	1.000	2.496	2.731	2.888	3.037	3.125	3.235	3.345	3.469	3.624	4.000	3.100	.440
2	1.000	2.441	2.706	2.868	2.984	3.128	3.238	3.351	3.474	3.634	4.000	3.084	.459
3	1.000	2.762	2.994	3.142	3.264	3.367	3.474	3.577	3.680	3.807	4.000	3.326	.405
4	1.000	2.789	2.939	3.024	3.104	3.167	3.237	3.320	3.402	3.530	4.000	3.170	.287
5	1.000	2.247	2.517	2.694	2.824	2.974	3.054	3.179	3.306	3.471	4.000	2.914	.465
6	1.000	2.674	2.913	3.063	3.190	3.300	3.398	3.495	3.602	3.745	4.000	3.253	.408
7	1.000	2.252	2.517	2.674	2.810	2.920	3.002	3.132	3.245	3.395	4.000	2.879	.441
8	1.000	2.722	2.911	3.018	3.138	3.225	3.320	3.407	3.502	3.654	4.000	3.208	.357
9	1.000	2.586	2.826	2.979	3.077	3.172	3.265	3.360	3.460	3.595	4.000	3.137	.394
10	1.000	2.389	2.638	2.798	2.944	3.063	3.173	3.290	3.418	3.575	4.000	3.027	.452

Table 32 (Continued)

Item	Decile										Mean	S.D.
	0	1	2	3	4	5	6	7	8	9		
11	1.000	2.539	2.732	2.869	2.979	3.074	3.180	3.280	3.402	3.565	4.000	3.069	.393
12	1.000	2.296	2.526	2.669	2.789	2.882	2.979	3.072	3.174	3.314	4.000	2.852	.394
13	1.000	2.113	2.353	2.516	2.646	2.758	2.866	2.979	3.102	3.267	4.000	2.735	.441
14	1.000	2.997	3.209	3.346	3.446	3.539	3.619	3.702	3.779	3.879	4.000	3.485	.350
15	1.000	2.610	2.833	2.995	3.103	3.210	3.310	3.420	3.530	3.665	4.000	3.180	.405
16	1.000	2.335	2.562	2.712	2.840	2.990	3.075	3.190	3.322	3.495	4.000	2.945	.439
17	1.000	1.770	1.950	2.088	2.205	2.325	2.445	2.582	2.730	2.976	4.000	2.356	.449
18	1.000	2.380	2.667	2.847	2.987	3.104	3.212	3.324	3.437	3.594	4.000	3.050	.464
19	1.000	2.502	2.767	2.927	3.057	3.170	3.277	3.390	3.502	3.647	4.000	3.128	.437
20	1.000	2.816	3.010	3.149	3.252	3.347	3.424	3.510	3.610	3.734	4.000	3.310	.360
21	1.000	2.598	2.865	3.002	3.145	3.255	3.362	3.472	3.582	3.717	4.000	3.214	.427

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